UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,143	07/15/2005	John Jenkins	067074-0312021/PCB/JM/P08	4049

27496 7590 07/11/2007

PILLSBURY WINTHROP SHAW PITTMAN LLP
P.O BOX 10500
McLean, VA 22102

EXAMINER	
REDDIG, PETER J	
ART UNIT	**PAPER NUMBER**
1642	

MAIL DATE	DELIVERY MODE
07/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/509,143	JENKINS, JOHN	
	Examiner	Art Unit	
	Peter J. Reddig	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-33* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restriction

1. The Election filed 05/07/07 in response to the Office Action of 3/9/2007 is acknowledged and has been entered.

Applicant's election with traverse of Group I, claims 1-18, and the species compounds that bind to HSP90 and inhibit its activity, compounds that bind to HSP90 and inhibit its activity, cancer treatment, and solid tumors is acknowledged.

Applicant argues that the inventors have made a valuable contribution to the art by establishing that the first and second agents have synergistic effects on cancer treatment not previously shown or taught by the prior art. Applicant argues that the special technical feature that is common to the inventions of Groups 1-13 is that the inhibition of HSP90 increases the amount of Topo II available to bind to DNA, which is not shown or taught by Münster et al (Clinical Cancer Res. 2001, 7:2228- 67074-312021 2236, IDS) ("Münster"). Applicant argues that Munster does not show or teach the HSP90 inhibitor causing release of its client. Furthermore, nowhere in Münster is the term "topoisomerase II" used. Münster specifically describes doxorubicin as "a DNA-intercalating agent that acts on different phases of the cell cycle." Applicant argues that, however, topoisomerase II poisons specifically kill at the G2/M boundary, not throughout the cell cycle.

Applicant argues that it is well known that doxorubicin has at least three distinct mechanisms of action on the cell. Alternatively, the mechanism of action is frequently quoted as unclear. The most common description of the mechanism of action of doxorubicin is as follows: doxorubicin damages DNA by intercalation of the anthracycline portion, metal ion chelation, or

by generation of free radicals. Applicant argues that Doxorubicin has also been shown to inhibit DNA topoisomerase II which is critical to DNA function. Applicant argues that therefore, Münster does not disclose the special technical feature of doxorubicin as modulating Topo II. It follows that the claims are unified by the concept that Topo II should be modulated in conjunction with HSP90 as a single inventive concept, in accordance with PCT Rule 13.1.

Applicant argues that the mechanisms of action contemplated in Münster is intercalation. It would be well understood by one of skill in the art that doxobubicin acts as an intercalating agent that wedges between the bases of DNA and blocks DNA synthesis and transcription (e.g., not dependent on Topoisomerase II action). T Applicant argues that Tpoisomerase II is not involved in normal transcription and there are numerous enzyme involved in DNA synthesis, any of which could be the cause of halting the process. Acordingly, Münster does show or teach the unifying feature of the present invention, namely, the modulation of Topo II.

Applicant's arguments have been carefully considered, but have not been found persuasive. Applicant is arguing limitations, such as synergy, that HSP90 increase the amount of Topo II available to bind DNA, HSP90 causing release of its client, that are not found in the claims and thus are not relevant to special technical feature of the invention. Although Münster does not specifically teach that doxorubicin modulates topoisomerase II, Applicant admits on the record that Doxorubicin inhibits DNA topoismerase II. Thus, although doxorubicin may have other functions, it would inherently modulate topoisomerase II when added with 17-AAG.

Thus the technical feature linking the inventions of Groups 1-13 does not constitute a special technical feature as defined by PCT Rule 13.2 as it does not define a contribution over the prior art.

For these reasons the restriction requirement is deemed to be proper.

Upon review and reconsideration it is found that the claims 1-18 of Group I as drawn to compounds that bind to HSP90 and inhibit its activity, compounds that bind to HSP90 and inhibit its activity, cancer treatment, and solid tumors contains claims directed to the following patentably distinct species:

A. Claim 1 is generic to the following disclosed patentably distinct species of compounds that bind to HSP-90 and inhibit its activity:

1. Geldanamycin or a derivative or analogue thereof/17-Allylamino, 17-demethoxygeldanamycin (17AAG)

2. Radicicol or a derivative or analogue thereof

B. Claim 1 is generic to the following disclosed patentably distinct species of compounds that bind to topoisomerase II and inhibit its activity:

1. a Podophyllotoxin and derivatives and analogues thereof

2. a Bisdioxopiperazine and derivatives and analogues thereof

3. a thiobarbiturate

If Applicants elect species, B-1, a Podophyllotoxin and derivatives and analogues thereof, Applicants must elect from species Group C.

C. Claim 1 is generic to the following disclosed patentably distinct species of Podophyllotoxin and derivatives and analogues thereof:

1) etoposide (VP16)

2) teniposide

If Applicants elect species, B-2, a Bisdioxopiperazine and derivatives and analogues thereof, Applicants must elect from species Group D.

D. Claim 1 is generic to the following disclosed patentably distinct species of a . a Bisdioxopiperazine and derivatives and analogues thereof:

1) ICRF-154

2) ICRF-159

3) ICRF-187

4) ICRF-193

E. Claim 1 is generic to the disclosed patentably distinct species of solid tumor types listed in claims 13, 15, and 16, not including any type of leukemia and lymphoma. Applicant must elect ONE solid tumor types from claims 13, 15, and 16 for examination.

Claims 1-18 will be examined as drawn to the elected species.

In accordance with the decisions in *In re Harnisch*, 631 F.2d 716, 206 USPQ 300 (CCPA 1980); and *Ex parte Hozumi*, 3 USPQ2d 1059 (Bd. Pat. App. & Int. 1984), restriction of a Markush group is proper where the compounds within the group either (1) do not share a common utility, or (2) do not share a substantial structural feature disclosed as being essential to that utility. In addition, a Markush group may encompass a plurality of independent and distinct inventions where two or more members are so unrelated and diverse that a prior art reference anticipating the claim with respect to one of the members would not render the other member(s) obvious under 35 USC 103. Since the decisions in *In re Weber*, 198 USPQ 328 (CCPA 1978) and *In re Hass*, 198 USPQ 334 (CCPA 1978), it is proper for the Office to refuse to examine that

which applicants regard as their invention, if the subject matter in a claim lacks unity of invention, see MPEP 803.02.

The species are independent or distinct because claims to the different species recite the mutually exclusive characteristics of such species. In addition, these species are not obvious variants of each other based on the current record.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

There is an examination and search burden for these patentably distinct species due to their mutually exclusive characteristics. The species require a different field of search (e.g., searching different classes/subclasses or electronic resources, or employing different search queries); and/or the prior art applicable to one species would not likely be applicable to another species; and/or the species are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species to be examined even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected species**, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

The election of the species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the election of species requirement, the election shall be treated as

which applicants regard as their invention, if the subject matter in a claim lacks unity of invention, see MPEP 803.02.

The species are independent or distinct because claims to the different species recite the mutually exclusive characteristics of such species. In addition, these species are not obvious variants of each other based on the current record.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

There is an examination and search burden for these patentably distinct species due to their mutually exclusive characteristics. The species require a different field of search (e.g., searching different classes/subclasses or electronic resources, or employing different search queries); and/or the prior art applicable to one species would not likely be applicable to another species; and/or the species are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species to be examined even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected species**, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

The election of the species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the election of species requirement, the election shall be treated as

an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected species.

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the species unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other species.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J. Reddig whose telephone number is (571) 272-9031. The examiner can normally be reached on M-F 8:30 a.m.-5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shanon Foley can be reached on (571) 272-0898. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Peter J. Reddig
Examiner
Art Unit 1642

PJR

SUSAN UNGAR, PH.D
PRIMARY EXAMINER